REMARKS

The specification has been amended as required by the Examiner.

Claims 13-20 have been rejected under 35 U.S.C. §112, first paragraph, because the specification allegedly does not enable a person skilled in the art to practice the invention commensurate with the scope of the claims. The applicants respectfully request reconsideration of the rejection in view of the following remarks.

The applicants describe a general method for producing a thin film in a substrate that includes forming microcavities, platelets, microblisters, or bubbles residing between solid bridges in an embrittled reference plane that defines the thin film of the substrate. (Specification p. 3, ll. 33-35, p. 4, ll. 1-35, p. 5, ll. 1-23). The terms microcavities, platelets, microblisters, or bubbles are used interchangeably and are well known to the skilled artisan. The applicants also describe specific embodiments of their invention as applied to certain substrates (Specification p. 8, ll. 4-9), and to certain implanted species in specific substrates (Specification p. 9, ll. 8-11) to achieve this embrittled reference plane. While specific and preferred illustrative embodiments are disclosed in their specification, the applicants assert that the inventive subject matter described in their specification cannot properly be limited to those embodiments. Given the description of the formation of microcavities residing between solid bridges, as defined, the instant specification meets the legal requirement for an enabling disclosure.

The Examiner has the initial burden to establish a reasonable basis to question the enablement provided for the claimed invention. In re Wright, 999 F.2d 1557, 1562, 27 USPQ2d 1510, 1513 (Fed. Cir. 1993) (examiner must provide a reasonable explanation as to

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why the scope of protection provided by a claim is not adequately enabled by the disclosure). The Examiner points to the specific embodiments in the applicants' specification and alleges that the specification lacks broad support for the claimed formation of microcavities and, therefore, does not meet the enablement requirement. (Office Action, p. 2). The applicants assert that the Examiner has failed to meet the burden of establishing a reasonable basis, since their specification contains a teaching of the manner and process of making and using their invention in terms which correspond in scope of the subject matter sought to be patented. Also, the Examiner failed to acknowledge that the microcavities reside between solid bridges, as required to facilitate handling of the wafer after implantation and prior to detachment of the thin film by mechanical forces. Accordingly, their specification must be taken as being in compliance 35 U.S.C. § 112, first paragraph, unless there is a reason to doubt the objective truth of the description that is relied upon for enabling support. (See MPEP §2164.04). Since the Examiner has not shown why one skilled in the art could not develop the allegedly missing information without undue experimentation, the Examiner has failed to provide a reasonable basis for questioning enablement. Id.

Although the Examiner has failed to establish a reasonable basis for questioning enablement, the applicants present the following explanation to expedite processing of their application and to remove any doubt as to enablement of their pending claims.

The Examiner asserts that the specification does not give sufficient guidance as to processing parameters needed to broadly form microcavities. (Office Action, p. 2). Applicants are not claiming the formation of any microcavities, but only those that reside between solid bridges. As taught in the specification, it is these microcavities and solid bridges that facilitate handling and further processing of the wafer (Specification p. 10, ll. 13-32), prior to

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detachment of the thin layer by the application of mechanical forces. (Specification p. 10, ll. 33-34). The test of enablement is whether one reasonably skilled in the art could make or use the invention from the disclosure in the patent without undue experimentation. United States v. Telectronics, Inc., 857 F.2d 778, 785, 8 USPQ2d 1217, 1223 (Fed. Cir. 1988). The applicants assert that the Examiner must consider the level of skill in the art when reviewing the specification and claims. See In re Wands, 858 F.2d 731, 737, 8 USPQ2d 1400, 1404 (Fed. Cir. 1988). This is because, the amount of guidance or direction needed to enable the invention is inversely related to the amount of knowledge in the art as well as the predictability in the art. In re Fisher, 427 F.2d 833, 839, 166 USPQ 18, 24 (CCPA 1970). As apparent from the numerous references cited by the applicants, there is ample guidance in the prior art for the formation of microcavities or bubbles in a substrate through the introduction of ions. See for example:

Evans, J.H., "An Interbubble Fracture Mechanism Of Blister Formation On Helium-Irradiated Metals" Journal of Nuclear Materials 68 (1977), pp. 129-140.

Cullis, A.G. ,T.E. Seidel and R.L. Meek, "Comparative study of annealed neon-, argon-, and krypton-ion implantation damage in silicon," J. Appl. Phys., 49(10), Oct. 1978, pp. 5188-5198.

Chu, W.K., "Radiation Damage of 50-250 keV Hydrogen Ions in Silicon" Ion Implantation in Semiconductors, eds. F. Chernov et al., Plenum New York 1976, pp. 483-492.

Roth, J., "Blistering Bubble Formation" Inst. Phys. Conf. Ser. No. 28 © 1976: Chapter 7, pp. 280-292.

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Each of the references listed above are of record in this application and describe the formation of microcavities or bubbles in substrate materials by the introduction of ions into the substrate. Evans describes the gas driven growth of bubbles in metals after helium implantation (p. 136) and presents an interbubble fracture model. (p. 131). Cullis et al. describe the formation of gas bubbles in silicon after implanting the silicon with various rare gas ions. The bubbles formed buried dislocation networks that remained after annealing. (p. 5190-91).

Chu et al. describe the formation of microblisters in silicon by hydrogen ion implantation over a range of processing conditions. Experimental results are described for implantation of hydrogen over a range of implant energies. (p. 484). Chu et al. also describe the influence of substrate temperature on the formation of circular microblisters. (pp. 486-89).

Roth et al. describe the formation of bubbles and blisters in niobium by implantation hydrogen, helium, and argon. (p. 281). Roth et al. further describe ion trapping efficiency as a function of implantation dose, and describe a critical dose at which no blistering occurs. A blister mechanism is proposed. (pp. 290-91).

In view of the information disclosed in the references listed above and in the remaining references cited in the instant application, the applicants assert that one skilled in the art will be able to practice the claimed invention based upon the instant specification. The more that is known in the prior art about the nature of the invention and how to make and use the invention, the more predictable the art is and, accordingly, less information needs to be explicitly stated in the specification. Indeed, a single embodiment can be sufficient to provide broad enablement in cases involving predictable factors. In re Cook, 439 F.2d 730, 734, 169 USPQ 298, 301 (CCPA 1971); In re Vickers, 141 F.2d 522, 526-27, 61 USPQ 122, 127 (CCPA 1944). The substantial degree of skill possessed by those who are active in the field of ion/substrate

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interactions and microcavity or bubble formation is such that the skilled artisan will readily comprehend how to make and use the applicants' claimed invention.

The applicants assert that one skilled in the art can fully comprehend the claimed subject matter. In view of (1) the applicants' disclosure of the claimed process for forming microcavities residing between solid bridges such that the wafer can be subsequently processed without fracturing the solid bridges until desired by the application of mechanical forces, (2) the Examiner's failure to explain why undue experimentation is necessary, and (3) the knowledge of the skilled artisan and the level of skill in the art of thin film processing, the applicants assert that the enablement rejection is not proper and should be withdrawn.

Turning to the art rejection, it is noted the sole art rejection is based on the'411 U.S. Patent to Henley, et al. The Henley et al. patent has an effective 102 date of May 12, 1997. The subject application claims priority, through its parents, to French Patent Application Serial No. 9606086, filed May 15, 1996. A certified copy of the above-identified French Application is of record in the parent application. Accompanying this amendment is a certified translation of Applicant's priority application, thus perfecting Applicant's priority claim under 35 USC § 119. With the perfection of Applicant's priority claim, the Henley et al. reference is removed as citable prior art in this case.

Corrected pages of the IDS identifying publication sources, to the extent known, are provided per the Examiner's request.

Form PTO-2038 authorizing a charge in the amount of $930.00 to cover the Three Month Extension of Time accompanies this Amendment.

Having dealt with all the objections raised by the Examiner, the Application is believed to be in order for allowance. Early and favorable action are respectfully requested.

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In the event there are any fee deficiencies or additional fees are payable, please charge them (or credit any overpayment) to our Deposit Account Number 08-1391.

Respectfully submitted,

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CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service as First Class Mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on June 27, 2003, at Tucson, Arizona.

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